

# **National Transportation Safety Board**

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**Testimony of the Honorable Robert L. Sumwalt, III  
Board Member  
National Transportation Safety Board  
Before the  
Subcommittee on Aviation  
Committee on Transportation and Infrastructure  
United States House of Representatives**

**Hearing on the Oversight of Helicopter Medical Services  
April 22, 2009**

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Good morning, Chairman Costello, Ranking Member Petri, and the Members of the Subcommittee. Thank you for the opportunity to appear before you today on behalf of the National Transportation Safety Board regarding helicopter emergency medical services.

As the Members of the Subcommittee are aware, the Safety Board is very concerned about the alarming number of accidents that have occurred involving helicopters in emergency medical services (EMS). I personally have a long-standing interest in this subject and chaired four days of public hearings held by the Safety Board in early February of this year.

**Background and Recent Accidents**

The Safety Board recognizes that operations involving helicopter medical services provide an important service to the public by transporting seriously ill patients and donor organs to emergency care facilities. Each year, approximately 400,000 patients and transplant organs are safely transported via helicopters. This vital service is credited with saving countless lives each year. However, the pressure to safely and quickly conduct these operations in various environmental conditions (for example, in inclement weather, at night, and at unfamiliar landing sites for helicopter operations) increases the risk of accidents when compared to other types of commercial flight operations.

The recent increase in accidents involving these operations is alarming. In the last six years, there have been 84 EMS helicopter accidents, resulting in 77 fatalities. Calendar year 2003 had 19 accidents and 7 fatalities; in 2004, there were 13 accidents with 18 fatalities; in 2005, there were 15 accidents and 11 fatalities. In 2006, 13 medical helicopter accidents occurred with a total of 5 fatalities. In 2007, there were 11 accidents with a total of 7 fatalities. And while these losses themselves are unacceptable, calendar year 2008 was the most deadly year on record for medical helicopters, with 13 accidents, and 29 fatalities. The death toll is even more striking when looking at the 11-month period between December 2007 and October 2008; there were 9 fatal accidents

that took the lives of 35 people. At this point, I would like to summarize each of these nine fatal accidents:<sup>1</sup>

- On December 3, 2007, a Eurocopter BK117C1, N141LG, crashed into the ocean about 3 miles east of Whittier, Alaska. The helicopter was operated by Evergreen Alaska Helicopters, Inc., under contract to Providence Hospital, Anchorage, Alaska, as a visual flight rules (VFR) patient transport flight when the accident occurred. Of the four persons aboard, only one body was recovered. The remaining three are presumed dead. Instrument meteorological conditions prevailed in the area of the accident, and company VFR flight following procedures were in effect.
- On December 30, 2007, a Bell 206L-3, N109AE, owned and operated by Air Evac EMS Inc., crashed while maneuvering near Cherokee, Alabama. The certificated airline transport pilot, paramedic, and flight nurse were fatally injured. Night visual meteorological conditions prevailed, and a company flight plan was filed for the local aerial search flight.
- On February 5, 2008, a Eurocopter AS350B2, N911VA, impacted water on Laguna Madre near South Padre Island, Texas. The helicopter was destroyed. The airline transport pilot, flight nurse, and flight paramedic sustained fatal injuries. The helicopter was operated by Metro Aviation, Inc., doing business as Valley Air Care, Harlingen, Texas. Visual meteorological conditions prevailed. The flight was en route to pick up a patient at an emergency landing zone in the parking lot of the South Padre Island Convention Center.
- On May 10, 2008, a Eurocopter EC 135 T2+, N135UW, operated by Air Methods Corporation, was destroyed during an in-flight collision with trees and terrain near La Crosse, Wisconsin. Night visual meteorological conditions prevailed. The pilot, physician, and flight nurse sustained fatal injuries.
- On June 8, 2008, a Bell 407, N416PH, owned by PHI, Inc., and operated as Med 12, was destroyed when it impacted a heavily forested area in the Sam Houston National Forest, south of Huntsville, Texas. Night visual meteorological conditions prevailed at the time of the accident. The pilot, flight nurse, flight paramedic, and passenger were fatally injured. The flight had departed Huntsville Memorial Hospital Heliport after picking up a patient, and was en route to Herman Memorial Hospital, Houston, Texas.
- On June 29, 2008, a Bell 407, N407GA, and a Bell 407, N407MJ, collided in mid air while approaching the Flagstaff Medical Center helipad, Flagstaff, Arizona.

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<sup>1</sup> Reports from these investigations have been released on the Safety Board's web site at [www.nts.gov](http://www.nts.gov). Four of the nine reports have had probable causes adopted. The information released on the remaining five investigations is factual in nature and does not provide any analysis. The public may view and download the docket contents via the NTSB's web site at the "FOIA Reading Room" link on the home page.

Both helicopters were destroyed, and all seven persons aboard the two aircraft were fatally injured. N407GA was operated by Air Methods Corporation, Englewood, Colorado, and registered to Flagstaff Medical Center. N407MJ was operated by Classic Helicopter Services, Page, Arizona, and registered to M&J Leisure, L.L.C., Ogden, Utah. Visual meteorological conditions prevailed, and company flight plans were filed for both flights. N407GA's flight departed Flagstaff Pulliam Airport and N407MJ's flight departed the Grand Canyon National Park Service South Rim helibase, Tusayan, Arizona.

- On August 31, 2008, a Bell 206L-1, N37AE, operated by Air Evac EMS Inc., was destroyed during an in-flight collision with terrain and post-impact fire near Greensburg, Indiana. Visual meteorological conditions prevailed. The pilot, flight nurse, and paramedic sustained fatal injuries. The accident flight departed from Burney, Indiana, with the intention of returning to the aircraft's base located in Rushville, Indiana.
- On September 27, 2008, an Aerospatiale (Eurocopter) AS365N1, N92MD, call sign Trooper 2, registered to and operated by the Maryland State Police, on what the Federal Aviation Administration (FAA) has declared a public use EMS flight, was substantially damaged when it collided with trees and terrain in Walker Mill Regional Park, District Heights, Maryland. The flight had been cleared by air traffic control for an instrument landing system approach to runway 19R at Andrews Air Force Base, Camp Springs, Maryland. Instrument meteorological conditions prevailed at the time of the accident, and no flight plan was filed. The commercial pilot, one flight paramedic, one field provider, and one of two automobile accident patients being transported were fatally injured. The other patient being transported survived the helicopter accident and was taken to a local hospital with serious injuries. The flight originated from a landing zone located at Wade Elementary School, Waldorf, Maryland, initially under VFR conditions. The flight was destined for the Prince George's County Hospital in Cheverly, Maryland, but was diverted to Andrews Air Force Base due to foggy conditions at the hospital.
- On October 15, 2008, a Bell 222, N992AA, operated by Air Angels Inc., and piloted by a commercial pilot, was destroyed when it struck a radio station tower and then impacted the ground in Aurora, Illinois. A post-crash fire ensued. The EMS flight was en route from the Valley West Hospital Heliport, Sandwich, Illinois, to the Children's Memorial Hospital Heliport, Chicago, Illinois, when the accident occurred. Night visual meteorological conditions prevailed in the area of the accident site. All four occupants, including the pilot, a flight paramedic, a flight nurse, and the 14-month-old patient, were fatally injured.

## **Previous Safety Board Studies and Special Investigations**

The Safety Board has a long-standing interest in EMS aviation. In 1988, the Board conducted a safety study of commercial EMS helicopter operations. That study evaluated 59 EMS helicopter accidents and resulted in the Safety Board issuing 19 safety recommendations. The majority of these recommendations to the FAA were closed as a result of the June 20, 1991, issuance of Advisory Circular (AC) 135-14A, "Emergency Medical Services/Helicopter (EMS/H)," which addressed equipment, training, crew resource management (CRM), decision-making, flight-following procedures, weather minimums, and the development of safety programs for EMS helicopter flights operating under 14 *Code of Federal Regulations* (CFR) Part 135. Although the Safety Board expressed concern at the time that the FAA chose to issue an AC instead of regulations, the number of EMS accidents was decreasing; thus, the recommendations were closed. Despite the guidance provided in AC 135-14A and AC 135-15,<sup>2</sup> EMS aircraft accidents have continued to occur in significant numbers. In the late 1990s and early 2000s, there was a significant growth of helicopter EMS and the number of accidents began to rise.

Prompted by this rise in EMS accidents, in January 2006, the Safety Board conducted a special investigation that analyzed 41 helicopter EMS and 14 airplane EMS accidents that had occurred in the previous three years, claiming 39 and 15 lives, respectively. In its final Special Investigation Report of EMS Operations,<sup>3</sup> the Safety Board identified the following recurring safety issues:

- less stringent requirements for EMS operations conducted without patients on board;
- a lack of aviation flight risk evaluation programs for helicopter EMS operations;
- a lack of consistent, comprehensive flight dispatch procedures for EMS operations; and
- no requirements to use technologies such as terrain awareness and warning systems (TAWS) and Night Vision Imaging Systems (NVIS) to enhance EMS flight safety.

## **Recommendations to the Federal Aviation Administration and Their Status**

The 2006 special investigation resulted in the Safety Board issuing four recommendations to the FAA to improve the safety of these operations. Of significance, the Board determined that 29 of the 55 reviewed accidents could have been prevented if the corrective actions recommended in the report had been implemented. The four safety recommendations called on the FAA to:

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<sup>2</sup> On November 19, 1990, the FAA issued AC 135-15, "Emergency Medical Services/Airplane," which contained guidance information similar to AC 135-14A. However, the recommendations from the 1988 study focused on EMS helicopter operations; the closure of these recommendations was based on the issuance of AC 135-14A.

<sup>3</sup> The full report can be found on the Safety Board's web site at the following address:  
<http://www.nts.gov/publictn/2006/SIR0601.pdf>.

- Require all EMS operators to comply with 14 *Code of Federal Regulations* Part 135 operations specifications during the conduct of all flights with medical personnel on board. (Recommendation A-06-12)
- Require all EMS operators to develop and implement flight risk evaluation programs that include training all employees involved in the operation, procedures that support the systematic evaluation of flight risks, and consultation with others trained in EMS flight operations if the risks reach a predefined level. (Recommendation A-06-13)
- Require EMS operators to use formalized dispatch and flight-following procedures that include up-to-date weather information and assistance in flight risk assessment decisions. (Recommendation A-06-14)
- Require EMS operators to install terrain awareness and warning systems on their aircraft and to provide adequate training to ensure that flight crews are capable of using the systems to safely conduct EMS operations. (Recommendation A-06-15)

Following the adoption of the Safety Board's 2006 Special Investigation Report, the number of people killed in helicopter EMS accidents decreased each year, until last year, when the number suddenly spiked to 29 fatalities in 13 accidents. Despite the FAA's efforts to improve EMS operations safety, the FAA has not taken sufficient action on the Safety Board's recommendations. Instead, in many cases, the FAA chose to publish notices that simply constitute information that principal operations inspectors may provide to their operators and encourage the operators to incorporate into their operations specifications. However, there is no requirement for operators to make the safety improvements mentioned in the notices.

As a result of the lack of timely and appropriate action by the FAA, and in the wake of the alarming number of fatalities, the four recommendations were added to the Safety Board's "Most Wanted List of Transportation Safety Improvements" in October, 2008. At that time, three of these recommendations were reclassified by the Board as "Open—Unacceptable Response." The Safety Board is concerned that these types of accidents will continue if a concerted effort is not made to improve the safety of emergency medical flights.

Specifically, the Safety Board has currently classified each recommendation as follows:

#### **A-06-12**

Require all emergency medical services operators to comply with 14 *Code of Federal Regulations* Part 135 operations specifications during the conduct of all flights with medical personnel onboard.

The intent of this recommendation is to ensure that weather minimums and pilot flight and duty time limitations in Part 135 be applied to all EMS flights, including those with medical personnel but no patients on board. On November 14, 2008, the FAA published revised Operations Specification (OpSpec) A021, which requires that all EMS flights with medical personnel on board, regardless of the presence of patients, be subject to the weather minimums limitation stated in Part 135. Although the revised OpSpec is partially responsive to the recommendation, the FAA must still require the Part 135 flight and duty time limitations for EMS flights in order to fully satisfy this recommendation. Accordingly, pending the issuance of a requirement that all EMS flights with medical personnel on board, regardless of the presence of patients, be subject to the flight and duty time limitations stated in Part 135, Safety Recommendation A-06-12 is classified "Open—Unacceptable Response."

### A-06-13

Require all EMS operators to develop and implement flight risk evaluation programs that include training all employees involved in the operation, procedures that support the systematic evaluation of flight risks, and consultation with others trained in EMS flight operations if the risks reach a predefined level.

In May 2006, the FAA indicated that it planned to add a specific requirement for a risk assessment program to OpSpecs A021 and 024. The FAA stated that these revisions would be completed by September 2006. At the end of December 2006, the Board verified that the revisions had not yet been incorporated into the OpSpecs. On April 3, 2007, Safety Recommendation A-06-13 was classified "Open—Acceptable Response," pending the addition of this requirement to the OpSpecs. As of today, the FAA has still not completed this action.

In August 2005, the FAA issued Notice N8000.301, "Operational Risk Assessment Programs for Helicopter Emergency Medical Services," which provided detailed guidance on the development and use of flight risk evaluation plans by EMS operators. This notice expired in August 2006, without further action for almost 2 years. In May 2008, the guidance within the expired notice was incorporated into FAA Order 8900.1, "Flight Standards Information Management Systems."

Although guidance is valuable, Safety Recommendation A-06-13 asks for a *requirement*, such as an operations specification, that all EMS operators develop and use flight risk evaluation programs. The Safety Board continues to investigate a number of accidents involving EMS flights where a flight risk evaluation was not performed. Therefore, the Safety Board believes that the FAA's failure to take action is unacceptable. Pending incorporation of a specific requirement into OpSpecs A021 and 024 to develop and use a flight risk assessment program, Safety Recommendation A-06-13 is classified "Open—Unacceptable Response."

#### **A-06-14**

Require emergency medical services operators to use formalized dispatch and flight-following procedures that include up-to-date weather information and assistance in flight risk assessment decisions.

In May 2008, the FAA published AC 120-96, which provides detailed guidance about the creation of Operations Control Centers for helicopter EMS operations. Among the activities described in the AC are the formalized dispatch and flight-following procedures recommended; however, an AC is only a guidance/advisory document and does not represent a requirement. Although the AC is responsive to the recommendation, the FAA now should require that all EMS operators incorporate the guidance contained in the AC into their operations. Pending the FAA's implementing such a requirement, Safety Recommendation A-06-14 remains classified "Open—Acceptable Response."

#### **A-06-15**

Require emergency medical services (EMS) operators to install terrain awareness and warning systems [TAWS] on their aircraft and to provide adequate training to ensure that flight crews are capable of using the systems to safely conduct EMS operations.

In June, 2006, at the request of the FAA, the Radio Technical Commission for Aeronautics (RTCA), an industry group that establishes standards for equipment used on aircraft, established a special committee to develop Helicopter TAWS (H-TAWS) standards. In March, 2008, the committee completed its work and in December, 2008, the FAA published a Technical Standards Order (TSO) based on the RTCA standard. However, the FAA will still need to consider rulemaking to require H-TAWS on EMS flights. Pending rulemaking action to mandate the installation and use of H-TAWS on all EMS flights, Safety Recommendation A-06-15 is classified "Open—Unacceptable Response."

### **Recent NTSB Public Hearing on Helicopter Emergency Medical Services**

Based on strong concern about helicopter EMS accidents, the Safety Board recently voted unanimously to conduct a public hearing regarding issues surrounding safety of this industry. The Board's public hearing lasted four days, from February 3 to February 6 of this year, making it one of the longest NTSB public hearings on record.

The Safety Board obtained the perspectives of nearly every facet of the EMS helicopter industry, including large and small companies, VFR and instrument flight rules (IFR) operations, hospital programs, and those who oversee them. The hearing featured 41 expert witnesses, representing 8 helicopter EMS operators, 12 associations, 6 manufacturers, and 4 hospitals. The majority of witnesses participated as part of small panels and addressed particular safety issues. Additionally, several organizations had an opportunity to question the witnesses directly. Federal regulations provide for the designation of parties to an NTSB public hearing. The parties assisting the Safety Board in this hearing were designated for their technical expertise in their respective fields. The



parties to the hearing were: FAA; Association of Air Medical Services; Helicopter Association International; National EMS Pilots Association; Professional Helicopter Pilots Association; Air Methods (representing a relatively large operator); and CareFlight (representing a relatively small operator).

The hearing took a comprehensive look at the EMS helicopter industry. It provided a better understanding of why this industry has grown significantly in recent years, and explored whether increasing competitive pressures to complete flights might be contributing to accidents. Also examined were flight operations procedures including flight planning, weather minimums, and preflight risk assessment, as well as safety enhancing technology such as TAWS and NVIS. Flight recorders and associated flight operations quality assurance programs were discussed. Training, including use of flight simulators, was discussed at length, as well as corporate and government oversight of helicopter EMS operations. These issues were organized and addressed in nine sessions in which panels of witnesses were questioned, under oath, by Safety Board staff, a Board of Inquiry, and the parties to the hearing. The nine sessions were:

- Current EMS Models and Reimbursement Structures
- State Oversight and Competition
- Patient Transport Request Process
- Flight Dispatch Procedures
- Safety Equipment and Flight Recorders
- Flight Operations Procedures and Training
- Corporate Oversight
- Safety Management Systems
- FAA Oversight

Not only did the Safety Board receive information from the participants in the hearing, but we also openly solicited the EMS helicopter community to submit additional information that would be evaluated and possibly entered into the public docket. That solicitation yielded hundreds of pages of documents. The submissions to the public docket closed on March 9, 2009.

### **Outcomes from the Public Hearing and Future NTSB Actions**

There are many possible courses of action resulting from the Safety Board's public hearing and from the recent helicopter EMS accident investigations, including an updated safety study on EMS operations, additional safety recommendations, and a white paper for use when addressing EMS safety issues. A complete written transcript of the hearing has been posted on the NTSB web site. Additionally, a comprehensive executive summary of this hearing will soon be posted on the web site.

One aspect that has already emerged from the hearing is that the Safety Board established a firm standard to classify an EMS accident in an attempt to harmonize its EMS accident census data with that of the air medical industry and the FAA. Under these revised standards, the Safety Board now classifies an EMS accident as one in which the

accident flight involved an aircraft dedicated to air medical operations, configured for such operations, and piloted by a dedicated EMS crew. As a result of this standard, the Safety Board's EMS accident statistics have been revised accordingly.

The Safety Board staff will continue examining the information obtained from the public hearing and from the nine recent fatal accidents – over 3000 pages in total – to look for innovative ways to improve safety. The Safety Board does not have statutory authority to promulgate regulations – the Board's primary products for change are safety advocacy and safety recommendations resulting from our investigations.

The Safety Board staff is drafting additional recommendations for the Board Members' consideration in the areas of oversight, equipment and training. The Safety Board staff anticipates having several proposed recommendations for the Board to review and adopt later this summer.

In closing, the Safety Board would like to take a moment to acknowledge the family members of those who have lost their lives and those who have survived helicopter EMS accidents. As an agency, we would like to offer our sincere condolences for their loss and for the difficulties that they and their families have endured.

Mr. Chairman, this concludes my prepared testimony, and I would be happy to answer questions at the appropriate time.